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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,778	09/26/2003	Byung-cheol Song	1293.1842	4343

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EXAMINER

DESIR, JEAN WICEL

ART UNIT PAPER NUMBER

2622

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/670,778

Applicant(s)

SONG ET AL.

Examiner

Jean W. Désir

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8-10 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 4, 7, 11, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                              |                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/24/05</u> . | 6) <input type="checkbox"/> Other: ____.                                                |

## **DETAILED ACTION**

### ***Drawings***

1. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 3, 5, 6, 8, 9, 10, 12, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted Prior Art Figs. 1-3 discussed in the Background of the instant application in view of Jiang et al (US 6,459,455).

#### **Claim 1:**

The admitted Prior Art Fig. 1 discloses:

A de-interlacing method (see Fig. 1 and Background paragraphs [0003], [0004]) of converting an interlaced format into a progressive format comprising:

“comparing a threshold value to a difference value between the respective filtered pixels in a current field to be subjected to de-interlacing in one of the current and previous frames and corresponding respective filtered pixels in preceding and succeeding fields to the current field and in the current and previous frames”, see Fig. 1 items 114, 116;

“determining motion index values of the respective pixels in the current and previous frames based upon the comparing”, see Fig. 1 items 118, 122, 124;

“determining a motion mode of a pixel subject to the de-interlacing in the current field based upon the determined motion index values of temporally and spatially adjacent pixels to the current field pixel, in the preceding and succeeding fields to the current field and in the current and previous frames”, see Fig. 1 items 124, 126, 128;

“and selectively performing spatial interpolation and temporal interpolation on the current field pixel according to the determined pixel motion mode”, see Fig. 1 items 128, 134, 132;

the difference between the claimed invention and the admitted Prior Art is that the admitted Prior Art does not explicitly show -filter for performing low pass filtering on pixels and providing respective filtered pixels- as claimed. However, the admitted Prior Art discloses comparing threshold value to difference value between respective pixels and then determining motion index values and motion mode in order to selectively perform deinterlacing algorithm, spatial interpolation and temporal interpolation, as

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pointed out above; and Jiang shows the advantage of using filters, for performing low pass filtering on pixels and providing respective filtered pixels, in a deinterlacing system based on measured motion (as evidence see Jiang at col. 5 line 30 to col. 6 line 7); because of these teachings an artisan would be motivated to combine the references to arrive at the claimed invention, the combination would provide a deinterlacing system capable of deinterlacing video signals by selectively performing deinterlacing algorithm based on detected motion modes. Therefore, the claimed invention would have been obvious to a person of ordinary skill in the art at the time the invention was made.

Claim 2 is disclosed, see Jiang at col. 5 line 30 to col. 6 line 7.

Claim 3 is disclosed, see Background of the instant application paragraphs [0006].

Claims 5, 6, are disclosed, see Background of the instant application paragraphs [0008].

**Claim 8** is rejected for the same reasons as claim 1; spatial interpolation of a pixel and temporal interpolation of a pixel are also disclosed, see Fig. 1 items 134, 132.

Claim 9 is also rejected; because low pass filtering, difference calculation, and difference value comparator as claimed, are already addressed in claim 1.

Claim 10 is rejected for the same reasons as claim 3.

**Claim 12** is rejected for the same reasons as claim 8.

**Claims 13, 14,** are rejected for the same reasons as claim 1.

***Allowable Subject Matter***

4. Claims 4, 7, 11, 15, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean W. Désir whose telephone number is (571) 272 7344. The examiner can normally be reached on 5/4/9 - First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272 7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**JWD**  
**Jun. 20, 06**

  
DAVID OMETZ  
SUPERVISORY PATENT EXAMINER